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CHINA REPORT
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I. GENERAL INFORMATION

MORE FARM MACHINERY RESEARCH URGED

Beijing GUANGMING RIBAO in Chinese 21 Jun 79 p 2

[Article by Zhang Qinghe [1728 3237 3109] of the Chinese Academy of Farm Mechanization (Zhongguo Nongye Jixiehua Kexue Yanjiuyuan [0022 0948 6593 2814 2894 2750 0553 4430 1331 4282 4496 7108]): "Agricultural Scientific Research System Should Be Reformed"]

[Text] Since 1950, when the first farm machinery research institute was set up, there have been almost 1800 farm machinery research institutes established at all levels throughout the country as part of our national farm machinery research endeavors. Nevertheless, the present level of our farm machinery research is not very high, and this is directly attributable to the lack of rationale in the system of farm machinery research. At the present time in our country, each province, municipality, autonomous region and most regions and counties have set up farm machinery research institutes, with some going so far as to establish farm mechanization research institutes as well. This has created two great evils.

The first evil is dispersal of forces. It goes without saying that farm machinery scientific and technical personnel in our country are scarce, and as a result of adding layer upon layer of farm machinery institutes at each level everywhere, some institutes are bound to be such in name only. Material derived from a survey conducted not long ago shows that among 31 farm machinery institutes in the central government, provinces, municipalities and autonomous regions, scientists and technicians numbered 2,582 for an average of 83 at each institute. In 243 regional level farm machinery institutes, scientists and technicians totalled 2,131 for an average of less than 9 per institute. Scientists and technicians in 1,514 farm machinery institutes at county level numbered 3,510 for an average of only 2 per institute. In the scientifically and technologically highly developed world of today, to have so few scientists and technicians at each institute, when added to the disadvantages wrought by deficiencies in scientific research techniques, makes it easy to realize how difficult advances in scientific research will be. This method, which disperses the limited farm machinery scientists and technicians available to the country, constitutes an extreme waste in the utilization of human resources.

The second evil is lack of clear and definite division of labor, and overlapping duties. An incomplete survey shows that in 31 farm machinery research institutes at the central government, provincial, municipality and autonomous district levels, 17 institutes were charged with research tasks on drainage and irrigation machinery, and 14 institutes were charged with research tasks on paddy rice machinery. But the actual number of people working on such research at each institute was very small; moreover, research methods were very limited and difficult of fulfillment. Without a change in such a situation, how can the level of our national research on farm machinery be raised?

How should the system of farm machinery research be reformed? I think it should be considered from the following points of view:

1. Unified planning and equitable division of labor. Henceforth, farm machinery research work must be given unified leadership by the Department of Farm Machinery with the Chinese Farm Mechanization Scientific Research Institute being the principal body, to organize organically the front ranking research institutes in the provinces, municipalities, and autonomous regions to conduct unified planning on scientific research questions about farm machinery, and to apportion labor equitably giving particular emphasis to each institute on the basis of its special features or specialities. The Chinese Farm Mechanization Scientific Research Institute should, above all, conduct theoretical, comprehensive, and exploratory research to upgrade constantly the overall capabilities and levels of various machines and tools. Provincial, municipal, and autonomous region research institutes of first rank should principally conduct design research for new products, plug equipment gaps, and find new replacements for old articles. Regional and county level research institutes should emphasize experimentation with existing farm implements, selection of types of machinery, giving demonstrations, popularizing, changing and designing implements to suit special local conditions.

2. Stress establishment of institutes on the basis of local conditions. Decision as to whether to establish farm machinery research institutes should be on the basis of concrete circumstances such as geography, natural conditions, and crops cultivated in each region. For example, some counties may set up institutes independently, while some other counties will not need to set up an institute but will come under the unified management of the prefectural level institute. In this way the structure may be streamlined with manpower being better concentrated.

3 Fix direction and develop specialized research. Research on farm machines must be closely linked with agricultural district divisions. Concurrent with a strengthening of comprehensive farm machinery research institutes on all levels, there has to be a linking between formulation and implementation in farming areas with a corresponding establishment of a certain number of specialized farm machinery research institutes such as for sugar cane, paddy fields, wheat, cotton, pole crops, livestock raising, and drainage and irrigation. Some of these research institutes may be set up independently, but most will be reconstituted on the foundation of the top-ranking provincial, municipal, or autonomous district research institutes.

HOW TO REFORM THE FARM MACHINERY RESEARCH SYSTEM DISCUSSED

Institutes Too Small, Numerous

Beijing GUANGMING RIBAO in Chinese 15 Jun 79 p 1

[Article by Chen Wanli [4453 5502 6849], professor at the Northeast Agricultural College: "It Is Better To Form a Fist Than To Spread Out Five Fingers"]

[Text] Editor's Note: Our present national system of scientific agricultural research does not at all suit requirements for the development of modernized agriculture. How, through a program of restructuring, reform, revamping, and improvement in the national economy, to revamp and reform the system of agricultural research has become an issue of common concern on the battle line of agricultural research. Recently this newspaper has continuously received quite a few letters and draft articles that have put forward proposals on the issue of revamping and reforming the agricultural research system. Selected for publication are three articles concerned with the system of research on farm machinery. In future, we shall continue to air letters and articles on this subject in the hope of attracting the attention of the sectors concerned for serious study and resolution of problems so as to make agricultural research work suit the demands of the new circumstances with all possible speed, and to play a larger role in bringing about the modernization of agriculture.

A popular saying has it that, "It is better to form a fist than to spread out five fingers." Under present circumstances in which our country lacks financial strength, material strength and scientific and technical personnel for farm machines, establishment of many levels of farm machinery research institutes by each province, each prefecture (or municipality), and each county hampers the development of our national agricultural research undertakings. If each province were to restructure its farm machinery research set-up on the principle of division of labor according

to special skills and knowledge in order to concentrate properly manpower, material resources, and financial strength, that would greatly accelerate the speed of national mechanization of agriculture.

Take the situation in Heilongjiang Province, for example. Presently there are a total of 91 farm machinery research institutes throughout the province at the provincial, prefectural (or municipal), and county levels employing more than 1,700 people, among whom technicians number more than 800. The largest number of people in these institutes are located in the one at the provincial level, which employs more than 300 people of whom technicians number more than 150. The prefectural (or municipal) farm machinery research institutes generally have between 40 and 70 employees with the fewest numbering only 2. The county farm machinery research institutes have 7 or 8 employees with some having as few as 2 or 3. In these farm machinery research institutes, it is a case of "complete no matter how small." For example in the Anling [1344 1545] prefecture of Daxing [1129 5281], where the farm machinery research institute has only 12 employees, there are, nevertheless, 3 chiefs of institute, a deputy chief of institute, a cook, an accountant, and a tractor driver, while scientific research personnel are few and far between. The provincial farm machinery research institute with the largest number of employees now wants to run its own grain shop, store, primary school, and child-care center with support personnel accounting for a large part of the establishment. Furthermore, inasmuch as our national financial resources are currently limited, with only a small amount going to expenses for farm machinery research institutes, funds when distributed to numerous institutes seem all the more inadequate. Current funding in the Heilongjiang Provincial Farm Machinery Research Institute averages only 2300 yuan per person per year, and funding to each county farm machinery research institute averages only 1500 yuan per person per year. When administrative expenses and wages are deducted from these sums, only a few cents remain for scientific research. Consequently, in none of the 91 farm machinery research institutes throughout the province is there a single fairly well-equipped specialized laboratory, nor is there a single fairly well-equipped experimental plant, nor yet a decent experimental base. Added to this is the practice of each farm machinery institute fighting its own war with great redundancy in labor. Though another unit may have already succeeded in their research on a problem, some research institutes are still "charging ahead," their heads buried, creating great waste. Facts fully demonstrate that it is impossible to run 91 farm machinery research institutes well in Heilongjiang Province. Both experience abroad and actual practice in our own country show that it is more advantageous to concentrate forces to run one or a few research institutes. For this reason, I propose:

1 To convert the Provincial Farm Machinery Research Institute into a Farm Machinery Research Academy, incorporating into it the key scientific research forces that are now scattered all over. Some run-of-the-mill prefectural farm machinery research institutes may be disbanded. Some others, depending on actual local needs and capabilities and on the principle of division of labor according to special skills or knowledge, should be converted to specialized research institutes. For example, some can concentrate on paddy field machinery,

others can concentrate on livestock machinery, and still others can concentrate on machinery for farming operations. All of these specialized research institutes would be under the unified leadership of the Provincial Farm Machinery Research Academy.

2. Inasmuch as the work of Heilongjiang Province in spreading farm machinery technology has lagged behind its research work, numerous research accomplishments have not found general use. Consequently, it would be more advantageous for the county farm machinery research institutes to be converted to stations for spreading farm machinery technology.

I believe that the restructuring in this way of the farm machinery research structure throughout the province holds numerous advantages, can streamline administrative personnel, can build up farm machinery research forces, and can also enhance basic theoretic research and strengthen technical reserves.

Fifty Institutes in Anhui

Beijing GUANGMING RIBAO in Chinese 15 Jun 79 p 1

[Article from Anhui Provincial Farm Machinery Research Institute: "Anhui Provincial Farm Machinery Research Set-Up Urgently in Need of Restructuring"]

[Text] In Anhui Province there are presently 50 farm machinery research institutes at the provincial, prefectural (or municipal), and county levels, among which 1 belongs to the province, 13 to the prefecture (or municipality), and 36 to the counties. Those employed in farm machinery research institutes throughout the province total 560 persons, of which technicians number half. During the past several years, the broad masses of farm machinery technicians have made a contribution to farm mechanization endeavors, but farm machinery research work still does not meet the needs of developments in the current situation. The most important current problems appear to be the following:

1. Scientific research forces are weak. Most of the personnel in Anhui Province currently involved in farm machinery research work graduated from institutions of higher education during the late 50's or 60's. Because of rapid developments in modern science and technology, they require further advanced study. Graduates of institutions of higher learning and from polytechnic schools during the past several years find it difficult to work independently, and require improvements in their skills. Moreover, the ratio of administrative personnel in farm machinery research units is too large, as for example in the Farm Machinery Research Institute in the Chi[illegible] [3069 3166] region where of a total of 11 persons, 1 is director of the institute, 3 are deputy directors, 2 are accountants, and 1 is a typist. This situation must change.

2. Scientific research techniques are backward. Take, for example, the case of the Provincial Farm Machinery Research Institute, where conditions are fairly good. Scientists and technicians there have only an old-fashioned slide rule

for use in their design work; testing of prototypes is done mostly with out-of-date machine testing equipment, and associated plants must still be relied upon for the test-manufacture of prototypes, so neither a time when the work will be done nor the quality of work can be assured. Furthermore, there is no established testing site. All that can be done is to go to a production brigade and "catch as catch can," never mind conducting scientific experiments in accordance with requirements. Conditions are even worse in prefectural and county institutes.

3. Management of research is chaotic. Provincial, prefectural (or municipal), and county farm machinery research institutes come under one of three organizations. Some belong to machine bureaus; some belong to industrial communications offices, and most county farm machinery research institutes come under farm machinery bureaus. Since each research institute operates according to the desires of separate leadership, the already rather weak scientific research forces available throughout the province are dissipated with an excessive redundancy in work that makes accomplishment difficult. For example, the Provincial Farm Machinery Research Institute, several prefectural institutes, and most of the county institutes in southern Anhui Province all worked separately to develop a rice transplanter, but as of this date not a single decent rice transplanter model has been developed anywhere in the entire province. In some county institutes where there are only two or three persons, serious scientific research work is out of the question.

Faced with a situation of low standards in farm machinery research work, a long production cycle, and few accomplishments, the broad masses of farm machinery scientists and technicians have become exceptionally worried. Some of them have put forward the following ideas:

a. Greatly strengthen the Provincial Farm Machinery Research Institute. While adding to the complement of scientific researchers, attention should also be given to the training and improvement of incumbent scientists and technicians. Provide advanced computers and metering equipment; build a desperately needed laboratory, a proving ground, and a test-manufacturing plant (or else designate a plant as being under the leadership of the Provincial Farm Machinery Research Institute) in order to make test-manufacturing of prototypes possible.

b. Combine separate farm machinery research institutes in various places to establish the Northern Huai, the Jianghuai, the Yanjiang, the South Anhui and the Hofei branch institutes under the leadership of the Provincial Farm Machinery Research Institute. County level farm machinery research institutes to be designated as under the leadership of farm machinery management departments with their duties centering on the mechanization requirements of their own counties, helping with the introduction of farm implements, enlarging the use of equipment, and maintenance work. The Provincial Farm Machinery Research Institute should coherently plan and coordinate the research problems to be worked on by the five branch institutes, the operating expenses, and the materials, as well as the evaluation of results and the deployment of personnel. The research tasks of each branch institute should also be equal in importance.

c. Further define the direction and mission of scientific research. Henceforth, farm machinery research work over a period of time must be in accordance with the development of agricultural production and the concrete conditions existing in this province. Long-term research on appropriate problems should be conducted primarily through the introduction of advanced technology from both inside and outside the country with appropriate improvements made on it, chiefly to make it serve the mission of this place at this time.

Liaoning Province

Beijing GUANGMING RIBAO in Chinese 15 Jun 79 p 1

[Article by Yin Zhipeng [3009 1807 7720] of the Liaoning Provincial Agricultural Machinery Bureau: "Some Ideas on Revamping the Liaoning Provincial Farm Machinery Research Structure"]

[Excerpts] There are presently 83 farm machinery research institutes in Liaoning Province, of which 1 is provincial, 13 are municipal or regional/(or league), and 69 are county (or banner). Permanent employees number more than 2000, among whom scientists and technicians constitute only about one-third.

Though this corps has scored definite achievements in agricultural machinery research work during the past several years, it is still a great distance away from being able to meet the needs of agricultural development, principally because of the irrational distribution of the farm machinery research structure, which must be revamped and reformed.

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CSO: 4007

INFORMATION ON CORN VARIETIES, PER-MU YIELDS

Shanghai YUMI SHEGCHAN JISHU WENDA [QUESTIONS AND ANSWERS ON TECHNIQUES OF CORN PRODUCTION] in Chinese Jun 75 pp 2, 45, 95, 96, 132, 133

[Excerpts] 2. What Is the Current Volume of Corn Production Per Unit of Area?

Experience in production shows corn to be the grain crop with highest yields providing an average yield of grain per mu between 600 and 700 jin. There are some high yield communes with production brigades and production teams that have produced in excess of 1,000 jin per mu, exceeding in a single season "the target" set by the National Program for Agricultural Development. In 1971, the Xigou Brigade of Pingshun [1627 7311] County in Shanxi Province produced an average 1,427 jin of spring corn over an area of 500 mu. In 1972, the Qianjin Brigade of the Kangjin Commune in Hulan [0729 5695] County in Heilongjiang Province produced more than 1,000 jin on the average by interplanting spring corn on 3,184 mu. The Xinmin No 3 Production Team of Laozhou Commune in Shaodong [0664 2639] County in Heilongjiang produced an average 1,294 jin of spring corn in 1970 on somewhat more than 400 mu; in 1971 its average per-mu yields were 1,790 jin; and in 1972 they averaged 1,500 jin. The Dongfanghong Brigade of Chifeng [6735 1496] County in Liaoning Province produced yields of 1,000 jin of spring corn per mu on 3,000 mu of land in 1972. The 142 Regiment of the 8th Agricultural Division of the Production and Construction Corps in Xinjian Province produced about 1,100 jin of spring corn per mu on 1,500 mu of land in 1971. In 1970, the Hezi Brigade of the Tumoteyou Banner of Baotou City in Inner Mongolia had yields of 1,200 jin of spring corn per mu on 360 mu of land. The Motianling Production Brigade in the Yao nationality autonomous county in Duan [6757 1344], Guangxi Province harvested yields averaging 1,025 jin of spring corn per mu on 110 mu of land in 1973. The Qinjia Commune in Suihua County, Heilongjiang Province had average yields in 1972 of 817 jin per mu on 30,540 mu of land.

Looked at from the standpoint of actual experience with high per unit yields of corn, the potential for increased yields of corn is great. We should give full rein to human initiative, to carrying out scientific farming methods, to constantly increase levels of cropping, to improvement of varieties, and to expansion of hybrid varieties over a wider area in order to make a greater contribution to increases in the amount of yield per unit of area and to be able to "store grain everywhere."

46. What Climatic Conditions Are Required for Spring Planting of Corn? What Is the Best Time to Plant Seeds in the Shanghai Area?

Of all the climatic conditions including factors such as air temperature, soil temperature, air humidity, soil moisture, and sunlight, most important are air temperature, soil temperature and soil moisture. The Shanghai area enjoys copious rainfall, so moisture is generally not a problem; of greatest importance is temperature conditions. It is the temperature of the soil that is fundamental. Of course, high or low air temperatures affect the rise and fall of soil temperatures, but the differential in air temperature is rather great and insufficiently stable while a rise in soil temperature is slower than for air temperatures and soil temperatures are comparatively more stable. Consequently, deciding the time to plant seeds on the basis of soil temperature is more reliable. Generally speaking, when the temperature of the cultivated layer on the surface of the soil or to a depth of 5 mm stabilizes at an average of approximately 10 degrees centigrade, it is about time to begin to plant seeds. A look at meteorological data for the Shanghai area shows that the mean soil temperature to a depth of 5 mm during the middle of March is about 9.6 degrees centigrade, and during the latter part of March it rises to 10.4 degrees. Furthermore, many years of planting experience by the poor and lower-middle peasants in Chongming County, the principal corn production area in the Shanghai region, leads to selection of the period around the Spring Equinox as suitable.

98. What Are the Types of Corn Hybrids?

Types of hybrid corn varieties include single hybrid varieties, double hybrid varieties, triple hybrid varieties, top hybrid varieties, comprehensive hybrid varieties, and intervarietal hybrid varieties. Of these, the single hybrid varieties and the double hybrid varieties show greatest potential for increased yields and are most widely used.

1. Single hybrid varieties consist of a cross between an inbred line and another inbred line. (The matter of inbred lines will be separately introduced later.) Special features of single hybrid varieties include a compactness of stalks, vigorous growth, high potential for increased yields, convenience and ease in seed propagation, ease in control, and fairly fast propagation over a wide area. Shortcomings include fairly low seed production and fairly high cost.

2. Double hybrid varieties consist of a cross between a single hybrid variety and another single hybrid variety. These varieties possess fairly large hybrid superiority, have a great potential for increased yields, show a fairly large propagation of seeds, and are low in cost. Seed propagation, however, is rather troublesome.

3. Triple hybrid varieties consist of a cross between a single hybrid variety and an inbred variety. Compactness of stalks and increased yields are similar to those of double hybrid varieties, but seed propagation procedures are simpler than for double hybrid varieties.

4. Top-crossed hybrid varieties consist of a cross between a varietal hybrid and an inbred line (or single hybrid variety or double hybrid variety). Seed propagation procedures are fairly simple and convenient, and these varieties possess both stability and strong adaptability.

5. Compound hybrid varieties grow out of a crossing under segregated conditions of any inbred lines or inbred hybrid varieties. Their special features are that their hybrid combination is stable, and once they are bred they may be used in production year after year for many years.

6. Intervarietal hybrid varieties consist of a cross between one variety and another. Their increase in yields are, for the most part, low, and seeds must be propagated every year. Their usefulness is not as great as the several hybrid varieties named above.

Appendix

1. An Introduction to the Principal Corn Varieties in the Shanghai Area.

Xindan Number 1. This is a single hybrid variety of corn bred in 1963 by the Institute of Agricultural Science in the Xinxiang region of Henan Province. It combines "525" with "517." Per-mu yields are approximately 800 jin and as much as 1,000 jin or more. About 120 days are required between sprouting following spring planting and maturity. Growth period for summer plantings is approximately 95 days. Stalks range between 200 and 250 mm in height. Ears slant away from the stalk and are located about 120 or 130 mm up the stalk. Stalks are rather slender, leaves long and narrow, tassels developed; the shafts on which the ears grow are short and thick, the ears of corn large and shaped like tapered cylinders and with a red ear axis. The color of kernels is golden yellow and they are in the shape of half a horse tooth. Quality is quite good. Each ear contains between 14 and 18 rows of kernels. One thousand kernels weight about 300 grams. This variety is fairly resistant to both corn leaf blight and spot diseases, but readily susceptible to smut. Plant spacing should permit growth of approximately 3,500 stalks per mu. To prevent lodging, particularly with spring planting, care must be taken to restrain growth of seedlings and to mound them up with earth for support. Growth characteristics include slow growth for the period immediately after sprouting with young shoots being rather weak. When elongation of the stalk occurs, growth is vigorous.

Seed propagation. First the female parent is sown, and when between one-third and one-half of the young sprouts have poked through the soil, the male parent is sown. The inbred line "525" pistillate tassel bracts are excessively long making for difficult pollination, so these bracts must be cut away and the pollination process aided by human labor to increase the quantity of seeds propagated. When backcrossing "517" sown in the spring as the female parent, plant 5 to 7 days earlier than the male parent; in summer sowing, plant 2 to 3 days earlier.

Nongda 20 was originally a double hybrid variety of corn bred by the Beijing Agricultural College through the combination ("Men 14" x "Wei 23") X ("Ao 45" x "Ao 43"). In 1967 it was introduced to Shanghai for test planting where it showed good results with 1 mu producing approximately 800 jin and with maximum yields of 900 jin and up. Growth period is approximately 120 days from the time sprouts appear in spring until maturity. Stalks are of medium height being 220 to 240 mm tall and pyramidal in shape permitting sunlight between rows, which makes this variety useful for interplanting. Ears are placed rather low at between 80 and 90 mm. Plants are resistant to wind and to lodging. The ears are rather large being 20 to 25 mm long with a grain weight per 1,000 kernels of about 230 grams. The kernels are light yellow in color and shaped like half a horse tooth. Spacing density is 4,000 to 4,500 stalks per mu.

Xinshuang Number 1. This is a double hybrid variety of corn bred in 1959 at the Agricultural Science Institute in the Xinxiang region of Henan Province by combining ("Ai 154" x "Jin 131") X ("Wei 591" x "Wei 143"). It matures early requiring 110 days after shoots first appear in spring plantings. It may be harvested around the time of the great Heat (mid to late July). It is a fine variety for pairing with other crops in a three crop per year system of "two dry field crops and one wet field crop." Yield is about 600 jin per mu with a maximum of 700 jin and up. Kernels are of the semi-hard type and of rather good quality. Stalks reach a height of between 180 and 200 mm with ears placed rather low. This variety resists wind and lodging well and is an excellent choice for interplanting. Density per mu is about 5,000 to 5,500 stalks. Since it matures rather early, attention must be given to early mounding up of earth for stalk support and to early care, particularly early application of fertilizer. Since the color of leaves on this variety is rather dark, the amount of fertilizer required is different than for local peasant varieties.

Huza Number 1. This variety was bred from a hybridization of "Wuyue Huang," a local peasant variety as the female parent with a "Huang Xiao 162" inbred line by the Shanghai Municipal Academy of Agricultural Science. It matures early, at approximately the same time as "Xinshuang Number 1." Planted in spring, it may be harvested around the time of the Great Heat (mid to late July). In the Shanghai area, if sown in early April, it may mature before the end of July. When sown in summer, the period of growth of maturity is 80 to 85 days.

Stalks are 180 to 200 mm tall with ears formed low on the stalk. It is resistant to wind and lodging. It is suitable for interplanting. Per-mu yields are about 600 jin with maximums of 700 jin and up. Kernels are semi-hard and of quite good quality. Seed propagation is easy, and both female and male parent varieties may be sown at the same time. It is very susceptible to bacterial wilt. Since some "Huang Xiao 162" inbred lines may be carriers of this disease, special care should be exercised in selection of this parent. Other culture tecniques are the same as for "Xin Shuang Number 1."

Xiao Jinhuang is a regional superior variety from the environs of Shanghai with a long history of cultivation. From 115 to 120 days are required for this variety to reach maturity when planted in spring. Stalk heights are between 220 to 240 mm with ears located at the 120 to 130 mm level. Yields are about 600 jin per mu with as much as 800 jin and up being harvested from high yield fields. Its principal characteristics are a slender ear axis, embedded kernels, and easy removal of kernels. The bare end of the ear is small, the ear axis white, and the kernels densely arranged in rows with an irregular arrangement of the kernels at the base end of the ear while the mid-section and top of the ear has an orderly arrangement of kernels. The kernels are orange in color, hard, of superior quality, large and swollen, rich in fragrance, and much liked by the people as food. Weight per 1,000 kernels is 200 to 220 grams. A planting density of about 5,000 stalks per mu is proper.

Wuyue Huang is a superior regional variety from the environs of Shanghai. It matures fairly early--earlier by 4 or 5 days than "Xiao Jinhuang"--and is suitable for planting in a three crop per year system in which there are "two dry field crops and one wet field crop." Stalks attain a height of about 220 mm. Seeds are in the shape of half a horse tooth; ear axis is red; kernels exhibit an orderly arrangement; the weight per 1,000 kernels is about 250 grams; density per mu is about 5,000 stalks; yields per mu are about 600 jin with a maximum of 700 to 800 jin.

Qing Yuya is a superior regional variety from the Shanghai area that reaches maturity 3 to 5 days later than Xiao Jinhuang. Plants reach a height of 230 to 250 mm; ears placed at the 120-130 mm level; the ears are larger than "Xiao Jinhuang" and the lower third of the ears exhibit an uneven arrangement of kernels. The middle and upper kernels are arranged obliquely toward the top. Kernels are embedded; the ear axis is slender; the bald end of the ear is small; and kernels may be removed with ease. Kernels are in the shape of half a horse tooth. The ear axis white in color; the weight per 1,000 kernels is 220 to 240 grams. Planting density should be about 5,000 per mu.

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DOUBLE, MULTIPLE EAR HYBRID MAIZE VARIETIES BRING HIGHER YIELDS

Beijing YICHUAN [HEREDITAS] in Chinese No 2, Mar 79 pp 21-22

[Article by Yang Yunkui [2799 0336 1145], Du Shican [2629 0013 3503] and Deng Xiaozhen [4098 1321 6297] of the Institute of Agriculture, Sichuan Province]

[Text] During the past several years, our country has bred some double ear and multiple ear hybrid varieties of maize. Their yields are much higher than for single ear varieties, as for example in the case of the double ear type Taidan 75 single hybrid, which yielded between 30 and 40 percent more than the Dake single ear type. When large amounts of fertilizer were used, per mu yields approached 1,000 jin or more. Multiple ear maize hybrid Suisui Red 220 yielded 20 percent more than the comparable variety, double ear White No 2. Reports from abroad indicate that despite a particularly dry year or close planting, Suisui Red forms small ears with lower rates of barren stalks than single ear maize. This demonstrates that the number of ears per stalk of maize is closely related to yield. Research by Jindekensi [phonetic] holds that the number of ears per stalk of maize is interrelated with yield, as for example an interrelationship coefficient of 0.40 ± 0.14 for white maize hybrid combinations, an interrelationship coefficient of 0.59 ± 0.10 for early yellow maize hybrid combinations, and an interrelationship coefficient of 0.58 ± 0.07 for late yellow maize hybrid combinations. A report by Lu Binsheng [7627 3453 3932] et al pointed out that when the genetic power of the number of ears per stalk of maize was 23.6 percent, 15.9 percent, and 24.3 percent, the 23.6 percent was an estimated genetic power based on a variable component with the 15.9 percent and the 24.3 percent being the generic power derived from the method of regression of the first generation of the female parent and the regression of the first generation of the male parent. The number of ears per stalk of maize has a rather high relationship to yield with an apparent relationship coefficient of 0.619 and a hereditary relationship coefficient of 0.819. Consequently, we believe that the breeding of high yield hybrid varieties that have dual or multiple ears (number of ears per stalk) is an effective way to further increase maize yields.

We made a comparative examination of the backcrossed hybrid combination listed below:

1. Ke-36. Medium maturing. Rather large number of ears per stalk. Under fairly good growing conditions when sown in spring, approximately four ears per stalk or an effective approximately two ears per stalk.

2. Men-5-2. Early maturing. In number of ears per stalk second only to Ke-36. Under fairly good conditions with spring sowing, approximately three ears per stalk or an effective 1.5 ears per stalk or so.

3. 306. Medium maturing. Medium number of ears per stalk. When grown in spring, ears per stalk usually number two with an effective one or slightly more per stalk.

4. Jin 57. Early maturing. Rather small number of ears per stalk. When grown in spring, ears per stalk number about 1.8 with an effective one ear per stalk.

See Tables 1 and 2 for results of observations of the above hybrid strains and some hybrid combinations with notes on ears per stalk and effective ears per stalk as well as the estimated genetic power of the number of ears according to the Huale [phonetic] formula for the second generation and for the double backcrossed progeny of the hybrid combination of Ke-36 x Jin 16.

In the second generation and among the progeny of a double backcrossing of Ke-36 x Jin 16, the cumulative genetic power manifested by the number of ears per stalk was calculated to be 33.84 percent.

Following preliminary observation, the number of ears for single hybrid combinations of maize lies between those of the parent pair. A look at the number of ears from combining double hybrid and triple hybrid combinations demonstrates even more than owing to the difference and divergence from the number of ears of the parent pairs, a "dose effect" is revealed in the heredity of the number of ears. The number of ears on hybrid combinations sown in spring averaged more than those sown in summer. Sparsely planted hybrid combinations given lots of fertilizer yielded more ears of maize than those grown under usual conditions. These facts show that the genetic pattern for number of ears of maize belongs to the quantitative genetic category. On most hybrid combinations with a fairly large number of ears per stalk, the effective number of ears were also relatively numerous. Spring sown multi-eared hybrid combinations usually also had multiple ears when sown in summer. From this may be seen the inherent genetic effect on numbers of ears. On the basis of our preliminary data, the genetic power of the number of ears has been calculated at 33.84 percent. The figure merits use as a reference point for the size of the quantitative genetic power of maize ears. But owing to the small sampling

on which the genetic power was calculated, further more broadly based and more thoroughgoing research is awaited only after which both theoretical and practical requirements may be better satisfied.

Table 1. Number of Ears Per Stalk for Inbred Lines and Hybrid Combinations

Planting Season	Inbred Lines and Hybrid Combinations	Average Number of Ears Per Stalk	Average Effective Number of Ears Per Stalk
Spring Sowing	Ke-36	4.20 ± 0.21	1.88 ± 0.11
	Men-5-2	3.00 ± 0.71	1.75 ± 0.48
	306	2.08 ± 0.07	1.24 ± 0.04
	Jin 57	1.80 ± 0.06	1.01 ± 0.05
	Men-5-2 x Ke-36*	3.35 ± 0.13**	1.40 ± 0.11
	Jin 57 x Ke-36	2.25 ± 0.18	1.05 ± 0.05
	(Men-5-2 x Jin 57) x Ke-36	3.20 ± 0.21**	1.83 ± 0.11
	(Ke-36 x Jin 57) x Men-5-2	2.75 ± 0.18	1.15 ± 0.08
	(306 x Ke-36) x Jin 57	2.20 ± 0.09	1.05 ± 0.05
Spring Sowing Sparse Planting	(306 x Ke-36) x (Men-5-2 Jin 57)	2.50 ± 0.00	1.15 ± 0.05
	Men-5-2 x Ke-36	4.96 ± 1.25	2.30 ± 0.15
Summer Sowing	(Men-5-2 x Jin 57) x Ke-36	3.17 ± 0.15	1.28 ± 0.11
	(Ke-36 x Jin 57) x Men-5-2	2.25 ± 0.19	1.00 ± 0.13
	(Men-5-2 x Ke-36) x Jin 57	0.06 ± 0.20	1.06 ± 0.01

Table 2. Estimated Genetic Power of Number of Ears of Maize

Algebra for Ke-36 x Jin 16	Degrees of Freedom	Variation (V)	
Second filial generation (F_2)	44	0.5963	Genetic Power = $\frac{2V_{F_2}-(V_{B_1}+V_{B_2})}{V_{F_2}} \times 100 \times 100$
First backcrossed generation (B_1)	42	0.2024	= 33.84%
Second backcrossed generation (B_2)	62	0.7884	

GENETIC VARIATION OF EARLY, LATE CROPPED RICE UNDER DIRECTED CULTURE

Beijing YICHUAN XUEBAO [ACTA GENETICA SINICA] in Chinese Vol 6 No 1, Mar 79 p 17

[Article by Wen Yingjian [3306 5391 1696], Wu Han [0702 3352], and He Qiongying [0149 3890 5391] of the Department of Agronomy, Hunan Agricultural College: "A Preliminary Study on the Genetic Variation of Early-Cropped Rice Varieties Versus Late-Cropped Ones Under Directed Culture]

[Text] Practice in production has shown that seeds reserved from early-cropped rice varieties that have experienced "sitting autumn" may produce plants of the late-cropped type. This is particularly likely to occur in newly introduced varieties. Among rice hybrid breeds, crosses between early-cropped and early-cropped hybrid varieties that have experienced "sitting autumn" has produced the same situation. This demonstrates that the formation of the early-cropped and late-cropped varieties is related to the light and temperature conditions of a definite growing season.

This experiment used various rather old and genetically stable early-cropped rice varieties and genetically variable hybrids obtained from reciprocal hybridization and directly cultured under late season conditions. Half were grown as an early crop and assessed for variations influenced by late season conditions with those plants in which variations occurred being selected out for further directed culture and further selection. The other half continued to be given directed culture as a late crop.

The averageincome from each crop was not compared with the same varieties and hybrids of late season plantings. It may be seen from this experiment that: 1) in established varieties, no variation in type appeared no matter an exposure from one to three times to the influences of late season conditions; 2) in an F_2 derived from a pedigree crossing and a backcrossing of a Short Stem Nante with a Summer Zhibai and that has experienced "sitting autumn," late-cropped plants appear among F_2 in the early crop of the succeeding year with a variation frequency of between 2.00 and 6.25 percent. This phenomenon did not occur in the various combinations that had not experienced "sitting autumn;" 3) as a result of directed culture and constant selection, variant types not only could be passed on genetically, but could, through algebraic increase, gradually tend to become stable types.

A variant F_2 plant chosen from the experiment showed a variation frequency of from 26.8 to 67.4 percent in the F_3 plant strain, and from 42.1 to 100 percent in the F_4. Outstanding results were achieved with the continuous culturing for 2 years of F_1 and F_2 as a late season crop. In addition to the above combinations, late-cropped plants were also discovered from a cross of Huiyang Zhenzhu Early with Short Stem Nante, and in F_4 a late-cropped stabilized plant appeared; 4) this experiment was conducted with strict attention to preventing a mixing of the hybrids. That parent pairs did not generate variant types shows that varieties with relatively stable hereditary traits are not readily affected by outside influences. Of the 60 combinations supplied for experimentation, only combinations infused with the Short Stem Nante hereditary line produced variants. For example, a pedigree cross and a backcross of Summer Zhibai with Short Stem Nante followed by "sitting autumn" succeeded. We judge from this that the reason results of directed culture will differ with different varieties is related to the genetics of the parent pairs. Short Stem Nante is a variety that was bred in the late 50's and has been promoted for cultivation only recently, but the other parent pairs are all rather old. Possibly when the genetic relationship of the parent pairs is greatly divergent and a lot of instability exists in the heredity of the hybrid, it may more readily accept directed culture.

9432
CSO: 4007

PHOTOCHEMICAL ACTIVITY OF CHLOROPLASTS STUDIED

Beijing YICHUAN XUEBAO [ACTA GENETICA SINICA] in Chinese Vol 6 No 1, Mar 79 p 39

[Article by Zeng Mengqian [2582 1322 3480], Lo Huixin [5012 2585 7451] and Shao Qintian [0664 0530 3944] of the Institute of Genetics, Chinese Academy of Sciences: "Studies on the Photochemical Activity of Chloroplasts and Isozymes in Chloroplasts of Maize Hybrids and Their Parents"[1]]

[Text] A chloroplast is a cell organ that carries on photosynthesis in green plants. Studies of the photochemical activity of isolated chloroplasts and the activity of isozymes in F_1 hybrids is an important aspect of the theoretical study of hybrid heterosis.

We selected a total of nine hybrid combinations of corn hybrids and their parent lines, and 16 inbred lines as materials for study. These materials were sown at three separate times and samples were taken of both the hybrids at the time their growths were identical. Extraction of chloroplasts was done according to the Anderson and Boardmen method. Measurement of Hill's reaction activity of chloroplast [DCIP photo-reduction] and chloroplast complementarism employed methods used by the photosynthesis unit of the Institute of Botany of the Chinese Academy of Sciences. Illumination was 25,000 Lux. Chlorophyll content was measured by the method reported by Arnon. Measurement of chloroplasts and isozymes was conducted using the vertical plane table polyacrylamide gelatin electric freezing method. Preliminary results are as follows:

1. Hill's reaction activity of chloroplast and chloroplast complementarism. Of the six hybrid combinations we measured, Hill's reaction activity of chloroplast showed three circumstances; a) Hill's reaction activity of hybrid F_1 was clearly higher than the average plants of the parent lines

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[1] This research received the enthusiastic guidance of Teacher Li Jigeng [2621 4949 5087] and Comrades Yang Taixing [2799 1132 5281] and Chen Futai [7115 4395 1132] participated in some of the work, for which thanks is expressed.

manifesting a preponderance of chloroplasts (there was one hybrid combination); b) hybrid F_1 was clearly lower than average plants of its parent lines; c) half (three) of the combinations that lay between the parental inbred lines were hybrid F_1. Measurement of chloroplast complementarism also showed a similar situation in that half of the combinations (three of them) were close to average parent plants while it was also discovered that one hybrid combination showed chloroplast supplement.

2. Chloroplasts and Isozymes. Tested were peroxidase isozymes, cytochrome oxidase isozymes, and alkaline phosphoric esterase from six hybrid combinations (somewhat different from the combinations tested above but with principal combinations being identical). Results clearly indicated that the peroxidase isozymes and the cytochrome oxidase exhibited six or seven bands. The mobility of both isozymes was similar. Of six hybrid F_1, four showed no apparent variations from the two kinds of isozymes in their parent lines. Even though extract from the leaf blade tissue revealed no combinations of "hybrid enzyme" bands, nothing similar appeared with the chloroplasts. The remaining hybrid F_1 favored the male parent. This evidence of favoring the male parent deserves serious attention. As for the alkaline phosphoric esterase, none was discovered in this experiment.

9432
CSO: 4637

STUDIES ON ISOZYMES, HETEROSIS IN MAIZE CONDUCTED

Beijing YICHUAN XUEBAO [ACTA GENETICA SINICA] in Chinese Vol 6 No 1, Mar 79 p 40

[Article by Li Jigeng [2621 4949 5087], Yang Taixing [2799 1132 5281] and Zeng Mengqian [2582 1322 3480] of the Institute of Genetics, Chinese Academy of Sciences: "Studies on the Isozymes and Heterosis in Maize--Comparative Study of Hybrids and Their Parents in Vegetative Stage"]

[Text] Once the fundamental concept of isozymes was broached in 1959 it very quickly gained widespread attention and applications in medicine, biology, taxonomy, pathology, and genetics.

Schwartz was first to use isozymes technique in corn hubrid work, discovering in the endosperms of corn hybrids that in addition to the isozyme belt for the parent pair there was a new isozyme that did not exist in the parent pair. He termed this a hybrid enzyme. Under the influence of this work, many people conducted similar research, but results obtained were not identical.

This project used six single hybrid combinations as material, choosing samples from two different periods--the five-leaf period and the staminate tassel ear-forming period. One gram of fresh leaf blades were ground into a paste at low temperature. This was refrigerated and centrifuged with a clear liquid being extracted. Polyacrylamide gelatin freezing on a verticle plane slab was used to get a viscosity of 7 percent. A 1 M tris-HCL system at a pH of 8.8 was used test for peroxidase and cytochrome oxidase. A 0.13M tris-citric acid system at a pH of 8.9 was used to test for esterase isozymes so as to compare variations in enzyme talbes of different combinations and hybrids and of parent pairs. The results are as follows:

1. Peroxidase. Scandalios' method was used for dying. In the six combinations provided for experimentation, all showed six to eight bands. Enzyme tables may be divided into four types: a) hybrids and their parent pairs without differences, such as $W64AO_2$ x $A6190_2$, which was the low heterosis comparison combination for this experiment; b) hybrids showing complementary bands such as 748788 x G4040-5550; c) hybrids possessing hybrid enzyme

bands such as the two combinations Ai 1278C x Tangsi Pingtou, and Fengbai 29B x GB 57; d) the final two combinations, hybrids and parent pairs had variations, but these variations were not the same as in the above two types; thus they form a fourth category. Using SDS for testing, neither the complementary nor the hybrid enzyme belts were affected. It seems they may belong to a free structure.

2. Cytochrome oxidase. The methods of Alam et al were used for dying. All enzyme chart configurations were similar to those for peroxidase.

3. Esterase. Dying was done by Smithies method. Among the first four combinations, the hybrids and the parent pairs showed two rather dark reddish brown belts and two or three light brown belts. Among different combinations as well as among hybrids and their parent pairs, no regular variations were observed.

9432
CSO: 4007

PEDIGREE, GENETIC RELATIONSHIP OF DWARF RICE VARIETIES STUDIED

Beijing YICHUAN XUEBAO [ACTA GENETICA SINICA] in Chinese Vol 6 No 1, Mar 79 pp 13

[Article by Liang Neng [2733 5174] of the Guangdong Academy of Agricultural Science: "Pedigree and Genetic Relationship of the Dwarf Rice Varieties of Guangdong Province"]

[Text] Genes control the major characteristics of paddy rice. Between parent and progeny and between sister varieties, the genotype frequencies are equal. Starting from this point of view, this article analyzes the pedigrees and genetic relationships of 89 dwarf rice varieties grown in Guangdong Province for the past 20 years using methods of Wright [1922] and Sakai [6794 0064] [1957]. The analysis holds that in the selection of parents for dwarf, early ripening, disease resistant and high yield breeds, it is not sufficient to pay attention only to the excellence of phenotypical characteristics, but the genetic relationship between parent and progeny ought not be overlooked, as for example whether selection of the parent breeds was limited to many inbred dwarf varieties. Topping anticipated breed objectives is the real difficulty. The writer points out that the introduction from foreign countries and from other provinces of genes resistant to diseases and pests is the crux.

9423
CSO: 4007

HEREDITARY GROWING PERIOD FOR INTERVARIETAL HYBRID RICE

Beijing YICHUAN XUEBAO [ACTA GENETICA SINICA] in Chinese Vol 6 No 1, Mar 79 p 16

[Article by Wang Xiangming [3076 0686 2494], Song Yunzhun [1345 6663 3196] and Shu Lihui [5289 3810 1979] of the Research Laboratory of Genetics, Wuhan University; "Inheritance of Growing Period in Intervarietal Hybrids of Oryza Sativa Subsp. Keng"]

[Text] This article summarizes research about the growing period for F_1 - F_4 intervarietal hybrid japonica rice progeny (including crosses of late with early, late with intermediate, and late with late maturing) using the criterion of the number of days till heading on a single stalk.

The basic tendency in F_1 is toward dominance of early maturing over late maturing. Of 17 hybrid combinations, 10 headed earlier than their early parent, one headed at the same time as an early parent, two headed a little earlier than the median heading time of the parents, two headed right at the median time for both parents, one headed on the late side of the median, and one headed at the same time as the late parent.

Heading in each of the F_2 combinations showed continuing changes with no discontinuation in the appearance of heading periods of early parents, late parents, and various in-between types. This demonstrates that the growth period for late maturing japonica rice is not under the control of any single recessive factor, but is manifested as an inheritance quantitative in character.

For the overwhelming majority of the various combinations in the F_2 colony the average heading period was slightly earlier than the mean for both parents. For ecotypes of great divergence (such as crosses between late and early maturing varieties), the extent of separation in F_2 was great when the two parents were crossed; in similar ecotypes, however, the extent of separation when the two parents were crossed was slight. In this experiment, there was a difference, on the average, of 57.8 days and 17.0 days respectively. In some combinations such as the crossing of Nongken 58 with Hubei Late No 3, 17.9 percent of the individuals in F_2 matured earlier than both parents.

In the F_3 of a cross between Nongken 58 with Nongken No 8, six plant strains out of 63 were very much earlier than their parents, and one was very much later. The average number of days till heading for each plant strain in F_3 and the average number of days till heading for each plant strain in the previous generation manifested a truly striking regressive relationship. But the extent of change in the heading period for the F_2 plant strain was markedly less than for F_2, thus demonstrating that the specific characteristic of growth period in a portion of the plant strains was tending to stabilize. Moreover, the extent of change was slight in the F_2 plant strains of all F_2 early parent or late parent types. The extent of change in F_3 plant strains from the F_2 intermediate types was great with separation into early, intermediate, and late types.

Deserving of attention was that individual F_2 late maturing single plants produced types that were close to being early maturing in the F_3 separation. There were some other plant lines that in F_3 manifested discontinuity in their heading periods.

The hereditary growth period of the F_4 plant line from a cross between Nongken 58 with Nongken No 8 had the same tendency as F_3, i.e. the average number of days till heading of each plant line in F_4 and the average number of days till heading of F_3 individual plants manifested truly striking regressive relationships. The extent of change in the heading period of the F_4 plant line was similar to that of the F_3, i.e. the extent of change was slight in F_4 plant strains of early parent or late parent types of the previous generation, and the extent of change was great in F_4 plant strains tended to stabilize at a figure approaching half, a great increase over F_3.

This article has researched the foundation for selective matching of parent pairs at the time of crossbreeding of japonica rice and the selection of hybrids in later generations, it has also provided significant data on the study of the quantitative characteristics of hereditary laws, and it has discussed them in a simple way.

9432
CSO: 4007

BRIEFS

NORTH CHINA AGRICULTURAL MEETING--The Ministry of Agriculture and the Ministry of State Farms and Land Reclamation jointly held a meeting in Harbin from 25 to 29 June on large-scale weeding with chemicals and preventing pests with biological control methods. Representatives from 16 provinces, municipalities and regions in North China took part in the meeting. [Zhu Shaoquan) of Dongbei Agricultural College, (He Yong) of Jilin Agricultural Science Institute and other experts gave reports on weeding with chemicals and controlling insects with biological methods. [Harbin Heilongjiang Provincial Service in Mandarin 1100 GMT 4 Jul 79 OW]

QINGHAI AGRICULTURE MEETING--Xining, 8 Jul--The Ministry of Agriculture recently held a field meeting in Qinghai Province to review and exchange experiences in eliminating wild oats with chemicals. Wild oats are harmful weeds endangering the growth of wheat and bean crops in North China and other places including Xizang. According to statistics, some 58 million mu of farmland in our country are hurt by wild oats, costing 1.5 billion jin of grain each year. For many years, peasants tried to eliminate wild oats manually but now more and more localities are using chemicals. This year, the rural units in Qinghai have used chemicals on 930,000 mu of land to weed wild oats. Under normal conditions, this will increase grain output by 50 million jin. [Beijing Xinhua Domestic Service in Chinese 0133 GMT 8 Jul 79 OW]

CSO: 4007

BRIEFS

FUZHOU SIDELINE PRODUCTION--The Fuzhou Municipal CCP Committee, Fujian, recently called on party organizations in the suburbs to encourage the masses of commune members to develop household sideline production while continuing to further consolidate and develop the collective economy. In the first 5 months of this year the city procured more than 14,000 dan of fresh eggs, showing an increase by 300 percent compared with the same period last year. The procurement of fresh milk also increased by 37 percent. [Beijing Domestic Service in Mandarin 1000 GMT 11 Jul 79 OW]

AGRICULTURAL CONFERENCE--On the evening of 6 July, the Fujian Provincial CCP Committee held a telephone conference to make plans on the five summer farm tasks. The conference demanded that the leadership at all levels regard summer reaping and sowing as the central task that precedes everything and do a good job of summer harvesting, summer sowing, summer procurement, summer distribution and summer field management. Bai Zhimin, secretary of the provincial CCP committee, presided over the conference. Jin Zhaodian, secretary of the provincial CCP committee, spoke. Taking part in the conference were the standing committee members of the provincial CCP committee, the vice chairmen of the Provincial Revolutionary Committee and the leading comrades of the departments, committees and bureaus. The conference revealed that there are 10.47 million mu of late rice throughout the province. There are also 6.5 million mu of hybrid late rice. [Fuzhou Fujian Provincial Service in Mandarin 0300 GMT 7 Jul 79 HK]

PEASANTS INCREASE INCOME--With the increase in the state's procurement prices for grain and edible oil, Fujian's commune members shall increase their income by some 67 million yuan as they fulfill this year's summer grain and edible oil procurement tasks. Fujian has increased the procurement prices for grain and edible oil since last April in accordance with the regulations of the central authorities. The increase is the largest of any past increase in procurement prices for grain and edible oil since the founding of the PRC. When (Chengguan) commune in Jiangyang County fulfills the summer grain procurement task, each peasant shall increase his income by an average of over 13.6 yuan, with the commune increasing its income by some 364,000 yuan. This sum of money can be used to buy some 120 hand-guided tractors or some 1,650 tons of chemical fertilizers. [Fuzhou Fujian Provincial Service in Mandarin 0300 GMT 6 Aug 79 HK]

FUJIAN FORESTRY--Fujian Province has made progress in cultivated tree saplings. During the first half of this year, 1.602 million mu of saplings have been cultivated. [Beijing Domestic Service in Mandarin 1000 GMT 8 Aug 79 OW]

CSO: 4007

CADRES, MASSES REPAIR DAMAGE DONE BY TYPHOON

Guangzhou Guangdong Provincial Service in Mandarin 2530 GMT 6 Aug 79 HK

[Summary] Cadres and masses in some areas in Guangdong which were struck by a typhoon have worked hard to repair damage and strived to crash transplant late rice. The typhoon No 8 landed in Shenzhen Municipality at 1330 on 2 August. When the typhoon arrived, the strongest wind reached over force 12. Through the mouth of Zhujiang, the typhoon entered Zhuhai, Doumen, Xinhui, Kaiping, Xinxing, Yangchun and Xinyi counties. The typhoon also affected 37 counties and municipalities in Shantou, Huiyang, Guangzhou, Foshan and Zhaoqing prefectures. The central and Guangdong meteorological observatories had made a rather accurate forecast of this typhoon before it hit.

Although the party organizations at all levels had led the masses to resolutely fight against the typhoon, relatively serious damage and losses were caused because the typhoon was strong. To help the people in the disaster areas build their homes and rapidly carry out production again, the provincial CCP and revolutionary committees have organized three work groups to express sympathy and solicitude to the people in Shantou, Huiyang and Foshan and assisted the local party and government organs in fighting against the disaster and promoting relief work. The Shantou, Huiyang and Foshan prefectural CCP committees have also sent work groups to express sympathy and solicitude to the people in relatively serious disaster areas. Together with the cadres and masses in those areas, they have fought against the disaster and carried out relief work and production again.

CSO: 4007

BRIEFS

TYPHOON DAMAGE, PRODUCTION RESUMED--The broad masses of cadres and people in areas hit by the recent typhoon No 8 are now engaged in anti-typhoon activities to restore production and to crash-transplant late-rice seedlings, striving to reduce the amount of typhoon damage. Despite anti-typhoon preparations, this typhoon caused "rather heavy damages and losses." According to incomplete statistics, more than 50,000 houses and buildings were badly damaged, nearly 100 persons were killed or missing, some dikes along the ocean were washed away by huge waves, and some late-ripening early rice crops and early-planted late-rice crops were inundated. Moreover, many sugarcanes and manioc, citrus and banana plants were blown down or broken into pieces. In Dongguan County, 200,000 persons were mobilized right after the typhoon to save the fallen sugarcanes and banana trees by putting them back up into an upright position and by piling more soil around the plants. Peasants in Zhongshan, Taishan and Gaoba counties are concentrating their manpower and material to crash-transplanting late rice in order to make up for the losses caused by this typhoon. In Haifeng County, over 135,000 persons were mobilized to repair houses, granaries and irrigation facilities and transplant late rice. [Guangzhou NANFANG RIBAO in Chinese 7 Aug 79 p 1]

RAINS FLOOD VEGETABLE FIELDS--The number eight typhoon that hit the Guangzhou suburbs on 2 August flooded 4,000 mu of vegetable fields in Shahe Commune in the suburbs. Militiamen braved heavy rains to drain the fields to save the crop. [Guangzhou NANFANG RIBAO in Chinese 3 Aug 79 p 1]

FARM CROPS--Dongguan County, Guangdong, has reaped good harvests of its 780,000 mu of early rice and 130,000 mu of peanuts. [Beijing Domestic Service in Mandarin 1000 GMT 30 Jul 79 OW]

CSO: 4007

MEETING DISCUSSES FARMLAND IMPROVEMENT

Guiyang Guizhou Provincial Service in Mandarin 2315 GMT 12 Aug 79 HK

[Summary] The Guizhou Provincial CCP and Revolutionary committees held a provincial farmland capital construction meeting in Guiyang from 4 to 12 August. Comrade Su Gang presided and spoke. Comrades Wang Chaowen and Zhang Yuhuan attended, and the latter gave a report. The meeting discussed the spirit of the national farmland capital construction conference and the important speeches of Comrades Hua Guofeng and Li Xiannian. The participants studied the provincipal CCP committee's views on readjusting the internal proportions of agriculture and on carrying out farmland capital construction, reviewed the experiences and lessons of the past 30 years and made arrangements for the work during the 3 years of readjustment, with the emphasis on the work of the coming winter and spring seasons.

The conference pointed out: "The province has suffered extensive drought 9 times in the 29 years since liberation, an average of once every 3 years. In this sort of natural condition, if we fail to make great efforts to promote farmland capital construction, to improve the production conditions, to build up stable and high-yielding farmland, and to increase our ability to resist natural disasters, it will be impossible to promote agricultural development and completely change the appearance of the province."

The conference held: "Farmland capital construction in Guizhou must proceed from the reality of the province's mountain areas and be conducted in the light of local conditions. We must maintain the principle of simultaneous harnessing of mountains, rivers and soil." It is necessary to put harnessing of the mountains in the important position and regard afforestation, construction of pasture land and prevention of soil erosion as important items in farmland capital construction.

During the 3 years of readjustment, it is necessary to curb all erroneous methods which are harmful to agricultural production and do well in protecting the existing mountain forests and the mountain slopes. The province should achieve gradual all-round increase of production in agriculture, forestry, animal husbandry, sideline occupations and fisheries, to lay the

foundation for future great development. During these 3 years, the province should in principle not undertake new water conservancy construction projects but should work to improve the existing projects and bring their role into full play. In harnessing the soil, it is necessary to work to improve the existing farmland.

"At the same time, it is necessary to carry out a general survey of the mountain forests, pastures, water conservancy resources and soil and to do well in preparing the survey and design work of farmland capital construction projects to be built during the Sixth Five-Year Plan, to lay the foundation for future great development of farmland capital construction."

The conference demanded: "The cadres and masses must launch in depth the discussion on practice as the sole criterion for testing truth, completely eradicate the pernicious influence of the ultra-leftist line of Lin Biao and the 'gang of four,' continue to emancipate their minds and correct their ideological line."

The meeting was also attended by members of the provincial agricultural leadership group, responsible comrades of the provincial military district, and persons concerned from all parts of the province.

CSO: 4007

BRIEFS

COMMUNE GRAIN QUOTAS--Beijing, August 8---People's communes on the outskirts of Beijing have overfulfilled the state tax and purchase quotas for summer grain. By July 24, 150,500 tons had been delivered or sold to the state. The Wajin production brigade of Zhoukoudian commune in Fangshan County delivered and sold 220 tons of summer grain, double its annual quotas. [Text] [Beijing XINHUA in English 0232 GMT 8 Aug 79 OW]

CSO: 4020

BRIEFS

AGRICULTURAL TASKS--The Heilongjiang Provincial CCP and Revolutionary committees jointly sponsored a telephone meeting on 17 July, calling on rural cadres, commune members and farm workers throughout the province to firmly grasp and do well the tasks prior to autumn harvesting. They include: field management, checkup and repair of all power-operated wells and pumping stations, manure gathering, livestock care, and planning for autumn farmland and capital construction, autumn sideline production and autumn tree planting. [Harbin Heilongjiang Provincial Service in Mandarin 1100 GMT 18 Jul 79 OW]

AGRICULTURAL PRODUCTION--The Heilongjiang Provincial CCP Committee and the Heilongjiang Provincial Revolutionary Committee issued an urgent circular on 3 July calling on cadres and masses in various localities to take immediate action to protect seedlings of crops damaged to various degrees by natural disasters. It stresses the need to promptly strengthen field management for seedlings in order to reap a bumper harvest, establish a responsibility system to promote production and promote advanced experience in taking good care of seedlings. [Harbin Heilongjiang Provincial Service in Mandarin 1100 GMT 5 Jul 79 OW]

DAIRY PRODUCTS--Harbin, August 13--With increased numbers of milch cows and sheep, Heilongjiang Province produced 10 percent more dairy products in the first half of this year than in the corresponding period of last year. The province produces various types of condensed milk, milk powder, butter and cheese. Quality was improved, and the output of dairy products for the first 6 months of this year amounted to 4,910 tons. With more than 3 million hectares of grassland, Heilongjiang Province is one of China's major producers of milch cows and sheep. It accounted for one-fourth of the country's output of dairy products. The province has in the past few years adopted many measures to boost animal husbandry, including helping communes to breed fine new stock, to run study courses in advanced techniques and to encourage individual peasants to raise cows and sheep as a household sideline. [Text] [Beijing XINHUA in English 0710 GMT 13 Aug 79 OW]

WHEAT HARVESTING--The harvesting of wheat on the state farms covering 15 million mu of land is now in full swing in Heilongjiang. This figure accounted for more than half of the province's 1979 wheat growing acreage and represented an increase of 2.5 million mu of land over the wheat acreage sown by the state farms in Heilongjiang in 1978. [Harbin Heilongjiang Provincial Service in Mandarin 1100 GMT 23 Jul 79 OW]

HONEY PURCHASE--As of 28 July, more than 300,000 jin of honey had been purchased by the state in Raohe County, Heilongjiang. [Harbin Heilongjiang Provincial Service in Mandarin 1100 GMT 7 Aug 79 OW]

CSO: 4007

BRIEFS

PEST CONTROL--Nanjing, July 17--Last May, reports of the sighting of cotton aphides in some local people's communes reached the Plant Disease and Insect Pest Control Station in Taicang County, East China's Jiangsu Province. Members of the station went there to find that the natural enemies of cotton aphides, including ladybird beetles, lacewings (chrysopa) and spiders, averaged 46 per 100 plants. Since observation over the years has shown that when there are less than 32 cotton aphides to every insect that is their natural enemy, the other insects are able to devour them. The station therefore warned the communes not to use pesticides and, as they had predicted, the cotton aphides were killed by their natural enemies within 15 days. This is a vivid example of how the county's plant disease and insect pest control network serves agriculture. In 1978, the county was unusually dry and its wheat, cotton and rice crops were all menaced by diseases and insect pests. Thanks to timely forecasts from the network, effective measures were adopted and the county suffered no losses. [Beijing XINHUA in English 0805 GMT 17 Jul 79 OW]

FISHERMEN'S INCOME--Nanjing, July 14--The newly-adopted policy of raising the purchasing prices for aquatic products will enable fishermen in Jiangsu Province to receive an additional income of 18 million yuan this year, an average of 44 yuan per capita. According to the provincial authorities, the policy went into effect at the end of the spring fishing season. The current purchasing prices for aquatic products are anywhere from 20 to 30 percent higher than before. Last year, the province's total catches of fish reached 400,000 tons, a 50,000-ton increase over 1976, the previous best year. The fishermen's income was from 10 to 50 yuan more per capita. In Jiangsu Province, rice, the main staple food, is sold at less than 30 fen (0.3 yuan) per kilogramme. The province has 35 fishing communes, their population combined being 410,000. They operate on fishing grounds on the sea totaling 1.8 million hectares, as well as on lakes, rivers and reservoirs, mostly in the southern part of the province. [Beijing XINHUA in English 0143 GMT 14 Jul 79 OW]

FARM CROPS--Yancheng County, Jiangsu, is growing 165,000 mu of intermediate rice, 360,000 mu of hybrid rice and 340,000 mu of cotton. [Nanjing Jiangsu Provincial Service in Mandarin 1100 GMT 30 Jul 79 OW]

RICE CROPS--Yancheng County, Jiangsu, is growing 160,000 mu of early rice. [Nanjing Jiangsu Provincial Service in Mandarin 1100 GMT 29 Jul 79 OW]

COTTON CROPS--Guannan County, Jiangsu, is growing more than 50,000 mu of cotton. [Nanjing Jiangsu Provincial Service in Mandarin 1100 GMT 29 Jul 79 OW]

FISH BREEDING--In 1978, Baoying County, Jiangsu, produced more than 8 million catties of aquatic products. Fish-breeding ponds in the county total 5,954 mu in area. [Nanjing Jiangsu Provincial Service in Mandarin 1100 GMT 29 Jul 79 OW]

AGRICULTURAL PRODUCTION--The masses in various counties of Jiangsu Province reaped a bumper harvest of summer-ripening crops this year. The masses in Guanyun County reaped a bumper harvest of wheat from 600,000 mou of farmland sown to wheat crops with total output increasing by nearly 40 percent over last year. The masses in Yixing County reaped a bumper harvest of wheat with total output increasing by 46 percent over last year and per-mou yield rising by 130 catties, setting an all-time record. The masses in Xiyu County reaped a bumper harvest of wheat with total output increasing by more than 50 percent as compared with last year and per-mou yield increasing by more than 100 catties. The masses in Wijin County reaped a bumper harvest from 800,000 mou of wheat crop with a total output increasing by 88 million catties or 27 percent over last year. The average per-mou yield of wheat reached 523 catties, increasing by 110 catties over last year. The masses in Hongze County reaped a bumper harvest of wheat with total output increasing by 50 percent over last year and an average per-mou yield increasing by 110 catties. [Nanjing Jiangsu Provincial Service in Mandarin 1100 GMT 5 Jul 79 OW]

INSECT PEST STUDY-- A major pest plaguing paddy rice crops in Jiangsu, especially in the south, the rice leafhopper, is being studied. The Jiangsu Provincial Civil Aviation Bureau dispatched a special plane on 9 August to make scientific studies of rice leafhoppers over areas between Nanjing and Shanghai. The leafhoppers migrate from South China's paddy rice areas to Jiangsu each year between July and August. [Nanjing Jiangsu Provincial Service in Mandarin 2300 GMT 10 Aug 79 OW]

INSECT PESTS--The Zhenjiang Prefectural CCP Committee recently called an emergency telephone conference to discuss measures to eliminate rice leafhoppers which are threatening the prefecture's 5 million mu of paddy rice. The conference decided to carry out activities between 10 and 14 August and between 22 and 31 August to combat the insect pests and called on transport departments in the countryside to speed up insecticide shipments. [Nanjing Jiangsu Provincial Service in Mandarin 2300 GMT 8 Aug 79 OW]

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BRIEFS

REAPING, SOWING--On the eve of "Autumn Begins" most of Jiangxi's areas had fulfilled their autumn sowing tasks. These areas are now working on field tending of late rice. The province has reaped a bumper harvest of early rice this year both on the plains and in the mountainous areas. Jiujiang Prefecture held a conference on 4 August to study measures for tending late rice. After this, the prefecture held a broadcast rally, calling on people throughout the prefecture to surpass the early rice production with that of late rice. All places in the province have also strengthened their leadership over prevention and elimination of insect pests. [Nanchang Jiangxi Provincial Service in Mandarin 1100 GMT 8 Aug 79 HK]

CSO: 4007

BRIEFS

HEAVY RAINFALL--In Liaoning, from 0000 GMT 23 to 0600 GMT 27 June, heavy rain fell in Dandong Municipality, Zhuanghe County of Luda Municipality, Swizhong County of Jinzhou Municipality and Huanren County Benxi Municipality with average rainfall above 100 millimetres. In Kuandian County the rainfall reached more than 200 millimeters. First flood peak of the flood season appeared in tributaries of Yalu River and rivers along the coast. Discharge of Aihe and other rivers increased from several dozen cubic meters per second to as much as 4,070 and 5,620 cubic meters per second, causing a calamitous flood. In the middle and lower reaches of Dayang River, the water level rose by nearly 5 meters, making it 0.61 meter above the warning water level. In many sections of Biliu and other rivers, water overflowed the banks and inundated some crops. [Shenyang Liaoning Provincial Service in Mandarin 2300 GMT 28 Jun 79 SK]

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BRIEFS

CATTLE RAISING--Zhelimu League in Nei Mongol has 1.04 million cattle. Since 1958, the league has supplied the state with some 80,000 beef cattle and more than 100,000 pieces of cow hide every year. [Beijing XINHUA Domestic Service in Chinese 0129 GMT 2 Aug 79 OW]

CSO: 4007

BRIEFS

PUMPING STATION--Beijing, 12 Aug--A large pumping station built with state investment in the Ningxia Hui autonomous region last year has been put into operation this year. Water from the Yellow River is lifted by pumps at 7 different levels to irrigate 6,600 hectares of farmland, and to provide drinking water for 30,000 people of the Hui and Han nationalities and for tens of thousands of head of livestock. [Text] [Beijing XINHUA in English 0105 GMT 12 Aug 79 OW]

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BRIEFS

GRASSLAND ACREAGE EXPANDED--Maduo County, Qinghai Province, has made efforts to expand pasture acreage in support of livestock raising. The acreage has been expanded by more than 757,000 mu during the first half of this year. [Xining Qinghai Provincial Service in Mandarin 1430 GMT 26 Jul 79 OW]

IRRIGATED LAND INCREASED--There are 1 million mu of farmland in Huangzhong County, Qinghai Province. In the early post-liberation days, only 90,000 mu were irrigated, more than 30,000 mu of which were not guaranteed of irrigation water. Now the county's irrigated land has increased to 238,000 mu. The county's total grain output was 253 million jin last year despite serious drought. [Xining Qinghai Provincial Service in Mandarin 1430 GMT 7 Aug 79 OW]

AGRICULTURAL PRODUCTION--Ledu County, Qinghai Province, is now busy harvesting. Some 28,000 mu of crops have been harvested. Sweet potatoes were planted following the harvest totaling 1,930 mu. [Xining Qinghai Provincial Service in Mandarin 1430 GMT 8 Aug 79 OW]

LIVESTOCK FIGURES--At the end of 1978, the total number of livestock in the Guoluo Tibetan Autonomous Prefecture was 3.64 million head. [Xining Qinghai Provincial Service in Mandarin 1430 GMT 31 Jul 79 OW]

GRAZE PLANTING--Under the state's vigorous support, Qinghai Province has set up bases for growing fine-strain graze in Golog, Yushu, Guinan and the state-owned Tongde pastoral farm. Last year, the Agriculture Ministry invested 600,000 yuan in the growing of fine-strain graze. The investment this year reaches 1.5 million yuan. At present the province has planted fine-strain graze on 19,000 mu, accounting for 80 percent of the annual plan. [Xining Qinghai Provincial Service in Mandarin 1430 GMT 24 Jul 79 OW]

WINTER WHEAT--Xining, 13 Aug--Qinghai Province has sown more than 6,000 mu of winter wheat this year on a trial basis. This province now grows both spring and winter wheat. [Beijing Xinhua Domestic Service in Chinese 0206 GMT 13 Aug 79 OW]

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BRIEFS

AGRICULTURAL SCHOOLS--Party organizations and educational departments at various levels in Shandong Province have made great efforts in restoring and developing agricultural middle schools. At present more than 600 such schools have been established in the province, forming an important element in intermediate education in the countryside. The province began to establish such schools in 1957. By 1965 their number had reached more than 5,000 with an enrollment of more than 280,000 students. However, undermined by the ultra-left line of Lin Biao and the "gang of four," most of the schools were compelled to close. [Beijing Xinhua Domestic Service in Chinese 0234 GMT 12 Jul 79 OW]

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BRIEFS

COLLECTIVE ENTERPRISES--Commune and brigade-run enterprises in Sichuan Province have raised their output value to 104 million yuan or nearly 40 percent more than the January-June period of 1978. These enterprises produced more than 13 million units of metal farm implements, 100,000 dun of chemical fertilizer and 120 million kwh of electricity during the first half of this year. [Beijing Domestic Service in Mandarin 1000 GMT 8 Aug 79 OW]

YAK RAISING--Ganzi Tibetan Autonomous Prefecture, Sichuan Province, has raised over 2.1 million yaks grazing in an area covering nearly 100 million mu of grassland. [Beijing Domestic Service in Mandarin 0415 GMT 23 Jul 79 OW]

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BRIEFS

TAXKOGRAN TAJIK AUTONOMOUS COUNTY--Since its founding 25 years ago, Taxkorgan Tajik Autonomous County in Xinjiang region has made tremendous headway in developing livestock breeding and agricultural production. Over the past 4 years, the county has dug 600 ditches with a total length of 390 kilometers and built 44,400 mu of grassland. Aside from delivering 15,000 head of marketable livestock to the state annually in the past several years, the county has also provided other fraternal counties with some 1,000 head of sheep of improved breed every year. Average of 500,000 jin of marketable grains were delivered to the state annually. [Urumqi Xinjiang Regional Service in Mandarin 1300 GMT 1 Aug 79 OW]

LAND RECLAMATION--Xinjiang Uygur Autonomous Region has reaped a good wheat harvest from 230,000 mu of reclaimed land. The total wheat output registered an increase of over 40 percent as compared with the same period of 1978. [Urumqi Xinjiang Regional Service in Mandarin 1300 GMT 4 Aug 79 OW]

MANURE PREPARATION--By 25 July, people in Aksu Prefecture, Xinjiang, had planted green manure crop on 200,000 mu of fields and had collected over 200 million jin of farm manure. Some 3 million jin of seed manure had also been prepared for sowing winter wheat. The prefecture plans to sow wheat on 2.3 million mu next year, of which 1 million mu will be high-yield fields. [Urumqi Xinjiang Regional Service in Mandarin 1300 GMT 3 Aug 79 OW]

COTTON PRODUCTION--Urumqi 4 Aug--Xinjiang Uygur Autonomous Region has procured 240,000 dan of long-fiber cotton or 63.2 percent more than in last year. Xinjiang has expanded its long-fiber cotton acreage from more than 400,000 mu in 1978 to 610,000 mu. [Beijing XINHUA Domestic Service in Chinese 0105 GMT 4 Aug 79 OW]

XINJIANG PREFECTURE ENTERPRISES--At present there are 983 commune- and brigade-run enterprises in Changji Hui Autonomous Prefecture, Xinjiang. According to incomplete statistics, income from these enterprises in 1978 reached 25.52 million yuan, accounting for 16 percent of the total income of communes, brigades and production teams in the prefecture. In the past 3 years, communes and brigades in the prefecture manufactured and sold 600 tractors and more than 1,500 pieces of farm implements for bulldozing.

Last year the prefecture sank over 2,000 wells. Average income of commune members in 1978 rose to 95.20 yuan from 75.87 yuan of 1977. [Urumqi Xinjiang Regional Service in Mandarin 1300 GMT 2 Aug 79 OW]

ARMYMEN SINK WELLS--In the past 1 year or so, a unit of the PLA capital construction engineer corps located some underground water sources and sank 30 earthen wells for local people in Akesu Prefecture, Xinjiang. The newly completed wells can irrigate 27,000 mu of farmland. [Urumqi Xinjiang Regional Service in Mandarin 1300 GMT 29 Jul 79 OW]

WHEAT GROWING--Wheat sown in over 900,000 mu of land in Qitai and Mulei counties in Xinjiang during the last spring is now growing well. This year, Qitai County increased its wheat growing acreage by 100,000 mu of land over the corresponding period of 1978. [Urumqi Xinjiang Regional Service in Mandarin 1300 GMT 28 Jul 79 OW]

SOUTH XINJIANG WHEAT HARVEST--A good wheat harvest has been reaped from 8 million mu of land in Hotan, Aksu, Bayingolin, Kizilsu Kergez and Kashi Prefectures. [Urumqi Xinjiang Regional Service in Mandarin 1300 GMT 6 Aug 79 OW]

FARMING PRODUCTION--The masses in Xinjiang have overcome the difficulties of natural disasters and achieved success in promoting agricultural and livestock production. The 20 million mu of winter and spring wheat crops are in good growing condition. The survival rate of adult livestock is 95 percent and the survival rate of young stock also exceeds 90 percent. The 7 million head of young stock bred this year are in healthy condition. [Beijing Domestic Service in Mandarin 1200 GMT 6 Jul 79 OW]

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BRIEFS

AGRICULTURAL SCHOOLS--According to ZHEJIANG RIBAO, Xinchuang County, Zhejiang, has established 28 agricultural middle schools and trained many basic agrotechnicians to serve local people's communes and production brigades. In recent years the country has trained more than 6,800 agrotechnicians in these schools. [Hangzhou Zhejiang Provincial Service in Mandarin 0400 GMT 12 Jul 79 OW]

RURAL SAVINGS--Savings accounts in the rural credit cooperatives of Zhejiang Province rose 86.32 million yuan by late June compared with the corresponding period in 1978, an increase of more than seven-fold. The steady rise in rural savings accounts is attributed to a bumper yield of spring crops and the devoted service of rural credit cooperatives. A series of effective measures have been adopted by 273 rural credit cooperatives in Jiaxing Prefecture to help commune masses better understand the importance of making savings deposits in relation to speeding up agricultural development and supporting the motherland's socialist modernization. [Hangzhou Zhejiang Provincial Service in Mandarin 1100 GMT 12 Jul 79 OW]

HOG RAISING--According to ZHEJIANG RIBAO, the engineers and workers of the walnut oil processing plant in Shangyu County, Zhejiang, have successfully carried out technical innovations to eliminate toxic phenol from cotton seed cakes. Zhejiang produces 100 million jin of cotton seed cakes annually. Through this new technology, cotton seed cakes can now also be used as hog feed instead of only as fertilizer. This new technology will enable the province to raise 400,000 more hogs. [Hangzhou Zhejiang Provincial Service in Mandarin 0400 GMT 17 Jul 79 OW]

SILKWORM COCOONS--By the end of July, Zhejiang Province had produced over 113,000 tons of summer silkworm cocoons, an increase of 52.7 percent over last year. [Hangzhou Zhejiang Provincial Service in Mandarin 040 GMT 11 Aug 79 OW]

SILKWORM OUTPUT--Beijing, July 17--The total output of the spring silkworm cocoon in Jiaxing Prefecture of Zhejiang Province was 21,900 tons this year, an increase of 150 tons over last year. The annual output of this prefecture represents a quarter of the total national output. [Beijing XINHUA in English 0252 GMT 17 Jul 79 OW]

TIMBER PRODUCTION--Kaihua County, Zhejiang, has delivered more than 72,000 cubic meters of timber to the state between January and July this year, or an increase of 35 percent as compared with the same period of last year. [Hangzhou Zhejiang Provincial Service in Mandarin 1100 GMT 8 Aug 79 OW]

ANIMAL HUSBANDRY--Dongyang County, Zhejiang Province, is encouraging commune members to raise more oxen, cows and sheep. The number of oxen in the whole county now reached 35,000 head and the number of sheep totaled 51,000 head, an increase by 8 percent and 7 percent respectively over the same period of last year. [Hangzhou Zhejiang Provincial Service in Mandarin 0400 GMT 8 Aug 79 OW]

LIVESTOCK RAISING--Jinhua County, Zhejiang Province, has made progress in livestock breeding. By the end of June, the county has 26,800 oxen in the barns. This figure represents an increase of 10 percent over the same period of last year. The number of sheep also shows an increase by 21 percent over the same period of 1978. [Hangzhou Zhejiang Provincial Service in Mandarin 0400 GMT 8 Aug 79 OW]

PIG RAISING--As of 30 June, the number of pigs in Jinhua County, Zhejiang, was 373,000, 17.9 percent higher than that of the corresponding period of 1978. Some 210,000 head of pigs had been procured by the state, an increase of 9,000 over the whole 1978 figure. [Hangzhou Zhejiang Provincial Service in Mandarin 1100 GMT 3 Aug 79 OW]

LATE CROPS--As of 2 August, Yongkang County, Zhejiang, had planted 78,000 mu of hybrid late rice, topping the original plan by 3,000 mu. Hybrid corn and ordinary late rice had been planted on 39,000 mu and 46,000 mu, accounting for 52 and 61 percent respectively of the planned acreage of planting. [Hangzhou Zhejiang Provincial Service in Mandarin 0400 GMT 5 Aug 79 OW]

CATTLE RAISING--Ninghai County, Zhejiang Province, has transformed over 600,000 mu of grassland into 62 bases for raising draft animals, 18 dairy farms and 10 ranches for raising beef cattle. So far, the county has raised 19,100 cattle on these bases or farms. [Hangzhou Zhejiang Provincial Service in Mandarin 1100 GMT 23 Jul 79 OW]

RICE ACREAGE EXPANDED--The Taizhou Prefectural Party Committee has mobilized the masses to plant hybrid late rice. In 1978, the prefecture gathered a bumper harvest from 350,000 mu of hybrid late rice. This year, the acreage for hybrid late rice has been expanded to 1.18 million mu. [Hangzhou Zhejiang Provincial Service in Mandarin 1100 GMT 1 Aug 79 OW]

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